

# *Risky Business*

## Pre-Visit Activities

3<sup>rd</sup> – 5<sup>th</sup> grade



# Activities

These activities are intended for use before your visit to the Virginia Air and Space Center. It is beneficial for the students to have some prior knowledge about the content area covered in the program. All of the activities can be tailored to your specific classroom needs, and the procedures listed are suggestions for teaching.

## Activity 1: Tree Diagram

Flipping a coin is one of the easiest examples of probability you can show your students. “If I flip a coin, what is the probability or chance of getting heads?” (1 out of 2 or 50%) Explain to the students that we can predict and list the possible outcomes of several coin flips by using a tree diagram. If we know that on the first flip, we will either get heads or tails, then we can map that the second flip will be either heads or tails branched off of the first flip’s outcome. The attached worksheet shows the outcomes of the first two flips of a coin. Have your students complete the worksheet, figuring out all of the possible outcomes of five coin flips. How many possible outcomes are there?

## Activity 2: Really 50%?

When we do flip a coin, the chances of getting heads are 50%, or 1 in 2, for each flip. But if we flip 10 times, will the outcomes be 5 tails and 5 heads? Because of the chances, it is possible, but not always the case. As we flip the coin more, we are providing more chances for the outcome to be 50% heads and 50% tails, or close to it. Use the attached worksheet to show this concept to your students. Have them flip coins and keep tally of the outcomes. They will record the number of heads and tails after each listed number (10, 20, 40, 60, 80, 100). Have them look at the data and notice if the outcomes even out to 50% the more the coins are flipped.

Name \_\_\_\_\_

Make a tree diagram below to show all the possible outcomes of flipping a coin five times. The possible outcomes of the first two flips are done below.

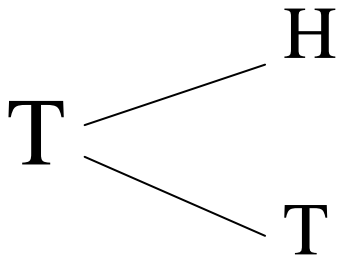
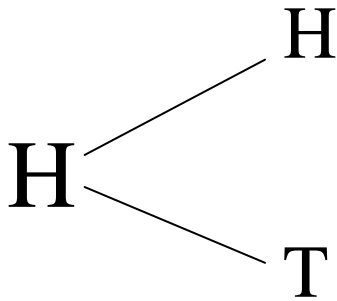
FLIP 1

FLIP 2

FLIP 3

FLIP 4

FLIP 5



How many total possible outcomes are there for 5 coin flips? \_\_\_\_\_

Name \_\_\_\_\_

With a partner or in a small group flip a coin. Keep a tally of how many tails and how many heads you flip. When you reach the specific numbers below, list how many heads tallies you have and how many tails. Notice if the numbers get closer to 50% as the number of tosses gets bigger.

HEADS

TAILS



10 flips : Heads \_\_\_\_\_ Tails \_\_\_\_\_

20 flips: Heads \_\_\_\_\_ Tails \_\_\_\_\_

40 flips: Heads \_\_\_\_\_ Tails \_\_\_\_\_

60 flips: Heads \_\_\_\_\_ Tails \_\_\_\_\_

80 flips: Heads \_\_\_\_\_ Tails \_\_\_\_\_

100 flips: Heads \_\_\_\_\_ Tails \_\_\_\_\_

# Resources

## **Books**

**Do You Wanna Bet?: Your Chance to Find out about Probabililty**, Jean Cushman, 2007

**Probability With Fun and Games**, Linda Bussell, 2008

**Pigs at Odds: Fun With Math and Games**, Amy Axelrod, 2000

**Probably Pistachio (MathStart)**, Stuart J. Murphy, 2001

## **Internet**

<http://pbskids.org/cyberchase/games/probability/index.html>

<http://nces.ed.gov/nceskids/>